Wortmannin

Phosphatidylinositol 3-kinase Inhibitor

Catalog # tlrl-wtm

For research use only

Version # 15K05-MM

PRODUCT INFORMATION

Content:

• 5 mg Wortmannin

Storage and stability:

- Wortmannin is provided as a translucent film and shipped at room temperature. Store at -20 °C. Solid product is stable 1 year at -20 °C. Wortmannin is light sensitive. Protect from light.
- Upon resuspension, prepare aliquots of Wortmannin and store at -20 °C. Avoid repeated freeze-thaw cycles. Resuspended product is stable for 3 months at -20 °C when properly stored.

Quality control:

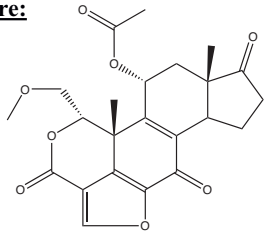
- Purity: ≥95% (LC)
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

Wortmannin is a cell-permeable, fungal metabolite that acts as a potent, selective and irreversible inhibitor of phosphatidylinositol 3-kinase (PI3K)[1]. There is increasing evidence of the involvement of PI3K in Toll-like receptor (TLR) signaling[2]. Inhibition of PI3K with wortmannin enhances TLR-mediated inducible nitric-oxide synthase (iNOS) expression, activates NF-κB and up-regulates cytokine mRNA production[3]. Furthermore, PI3K is required for autophagy[4]. Autophagy is a complex pathway in which cell material can be sequestered and delivered to the lysosome for degradation. Inhibition of PI3K with wortmannin can inhibit autophagic sequestration[4].

CHEMICAL PROPERTIES

CAS number: 19545-26-7
Synonym: KY 12420
Formula: $C_{23}H_{24}O_8$
Molecular weight: 428.4
Solubility: 10 mg/ml in DMSO
Structure:



METHODS

Preparation of sterile stock solution (20 mM)

1. Add 583 µl DMSO to 5 mg of Wortmannin.
2. Vortex until complete solubilization. Prepare aliquots and store at -20 °C. Once Wortmannin is solubilized, dilutions can be prepared using aqueous buffers.

Working concentrations: 100 nM - 10 µM

PROTOCOLS

For reference only; as described in the indicated publications.

Cell Culture Assay[3]
Cells: Human macrophages
Working concentration: 0.1-1 µM
Incubation time: 15 min
Methods: ELISA, RT-PCR and Western blot

Cell Culture Assay[4]
Cells: Rat hepatocytes
Working concentration: 100 nM
Incubation time: 1 h
Methods: Electron microscopy to study autophagosome formation

Cell Culture Assay[5]
Cells: PANC-1 cells
Working concentration: 200 nM
Incubation time: 1 h
Methods: Electron and fluorescence microscopy, immunoblotting

1. Arcaro A. and Wymann MP., 1993. Wortmannin is a potent phosphatidylinositol 3-kinase inhibitor: the role of phosphatidylinositol 3,4,5-trisphosphate in neutrophil responses. Biochem. J. 296:297-301. **2. Fukao T and Koyasu S., 2003.** PI3K and negative regulation of TLR signaling. Trends Immunol 24: 358-363. **3. Hazeki K. *et al,* 2006.** Opposite effects of wortmannin and 2-(4-Morpholinyl)-8-phenyl-1(4H)-benzopyran-4-one Hydrochloride on Toll-Like Receptor-mediated Nitric Oxide Production: Negative Regulation of Nuclear Factor-{kappa}B by Phosphoinositide 3-Kinase. Mol. Pharmacol., 69:1717- 4. **4. Blommaart EF. et al., 1997.** The phosphatidylinositol 3-kinase inhibitors wortmannin and LY294002 inhibit autophagy in isolated rat hepatocytes. Eur. J. Biochem. 243: 240–246. **5. Mancias J. et al., 2014.** Quantitative proteomics identifies NCOA4 as the cargo receptor mediating ferritinophagy. Nature 509, 105–9. 6.

RELATED PRODUCTS

Product	Description	Catalog Code
BEZ235	PI3K inhibitor	inh-bez2
LY294002	PI3K inhibitor	tlrl-ly29
Metformin	PI3K inhibitor	tlrl-metf

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